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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,202	11/28/2001	Chin-Ti Chen	08919-053001	1265
26161	7590	03/01/2005	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			THOMPSON, CAMIE S	
			ART UNIT	PAPER NUMBER

1774

DATE MAILED: 03/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/996,202

Applicant(s)

CHEN ET AL.

Examiner

Camie S Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on AfterFinal Amendment filed 11/5/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-6,8,9,11-18,20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6, 8, 11-13, 15-17 and 20 is/are allowed.
- 6) ☒ Claim(s) 9,14,18 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

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### DETAILED ACTION

1. Examiner regrets the untimely reopening of prosecution.
2. Applicant's supplemental amendment and accompanying remarks filed September 7, 2004 have been acknowledged.
3. The rejection of claims 5, 7-8, 11 and 20 under 35 U.S.C. 112, second paragraph is withdrawn due to applicant's amended claims 1, 4 and 15 from which claims 5, 7-8, 11 and 20 depend.
4. The rejection of claims 1-6, 15-17 and 19 under 35 U.S.C. 102(a) as being anticipated by WO00/03565 is withdrawn due to applicant's amended claims 1, 4 and 15 and applicant's argument.

### *Claim Rejections - 35 USC § 112*

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
6. Claims 9, 14, 18 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As presently written, R<sup>5</sup> requires unsubstituted C<sub>6-20</sub> aryl or C<sub>6-20</sub> aryl substituted with OH.

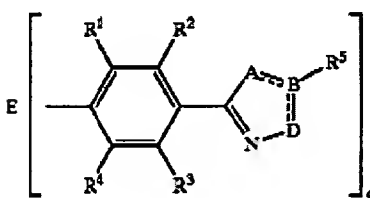
Additionally, as amended R<sup>5</sup> excludes C<sub>6-20</sub> aryl substituted with C<sub>1-6</sub> alkoxy. Instant claims 9 and 14 recite compounds that are C<sub>6-20</sub> aryl substituted with C<sub>1-6</sub> alkoxy. Claims 9 and 18 are not commensurate in scope with claims 1 and 15 from which they depend.

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Also, as presently written,  $R^5$  require  $N(R^{26})(R^{27})$  as a direct possibilities rather than a substituent for  $C_{6-20}$  aryl. Instant claims 14 and 21 recite compounds that are  $C_{6-20}$  substituted with  $N(R^{26})(R^{27})$ . Claims 14 and 21 are not commensurate in scope with claims 1 and 15 from which they depend.

***Allowable Subject Matter***

7. Claims 1-6, 8, 11-13, 15-17 and 20 are allowed. The prior art does not provide for an electroluminescence device comprising a substrate, a hole transporting layer, an emitting layer, and an electron transporting layer, wherein at least one of the hole transporting layer, the emitting layer, and the electron transporting layer comprises a compound having the following formula:



wherein

each of  $R^1$ - $R^4$  is, independently, H, substituted or unsubstituted  $C_{1-6}$  alkyl, OH,  $C_{1-6}$  alkoxy,  $N(R^6)(R^7)$ , in which each of  $R^6$  and  $R^7$  is, independently, H or substituted or unsubstituted  $C_{1-6}$  alkyl,  $NO_2$ , CN or  $CO_2R^8$ , in which  $R^8$  is H or  $C_{1-6}$  alkyl; and

wherein  $R^5$  is H, substituted or unsubstituted  $C_{1-6}$  alkyl, substituted or unsubstituted  $C_{2-6}$  alkenyl, substituted or unsubstituted  $C_{2-6}$  alkynyl, unsubstituted  $C_{6-20}$  aryl or  $C_{6-20}$  aryl substituted with OH,  $C_{1-6}$  alkoxy,  $N(R^{26})(R^{27})$ , alkylaryl in which the aryl moiety is substituted with one or more

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C<sub>1-6</sub> alkyl groups further substituted with hydroxyl, protected hydroxyl, amino, protected amino, carboxy, protected carboxy, alkoxy, halo, CN or NO<sub>2</sub>, substituted or unsubstituted C<sub>4-20</sub> heteroaryl, C<sub>10-20</sub> diarylaminoaryl, or is absent, or B and D, together with R<sup>5</sup> and R<sup>11</sup>, are substituted or unsubstituted aryl; in which each of R<sup>26</sup> and R<sup>27</sup> is, independently, H, substituted or unsubstituted C<sub>1-6</sub> alkyl, substituted or unsubstituted aryl, substituted or unsubstituted alkylaryl, NO<sub>2</sub>, CN, or CO<sub>2</sub>R<sup>28</sup>, in which R<sup>28</sup> is H or C<sub>1-6</sub> alkyl;

wherein A is O, S, N(R<sup>9</sup>) in which R<sup>9</sup> is absent, H, substituted or unsubstituted alkyl, or substituted or unsubstituted aryl, N=N, or N=C(R<sup>10</sup>) in which the C is adjacent to B and in which R<sup>10</sup> is substituted or unsubstituted alkyl, or substituted or unsubstituted aryl;

wherein B is C or N;

wherein D is N, NH or C(R<sup>11</sup>) in which R<sup>11</sup> is substituted or unsubstituted alkyl, or substituted or unsubstituted aryl, or B and D, together with R<sup>5</sup> and R<sup>11</sup> are substituted or unsubstituted aryl;

and wherein E is C or Si;

provided that when A is O and D is N, then B is C and the floating double bond is between B and D;

further provided that when A is N(R<sup>9</sup>) and R<sup>9</sup> is absent, the B is N, R<sup>5</sup> is absent, D is NH, and the floating double bond is between A and B;

further provided that when A is N=N, then B is C, D is N, and the floating double bond is between B and D;

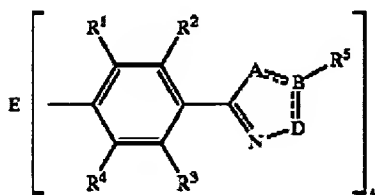
further provided that when A is N=C(R<sup>10</sup>), then B is N, R<sup>5</sup> is absent, D is C(R<sup>11</sup>), and the floating double bond is between B and D;

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further provided that when A is N(R<sup>9</sup>) and R<sup>9</sup> is H, alkyl, or aryl, then B is C, D is C(R<sup>11</sup>), and the floating double bond is between B and D;

further provided that when A is O or S and D is C(R<sup>11</sup>), then B is C and the floating double bond is between B and D.

Additionally, the prior art does not provide for a compound of the following formula:



wherein

each of R<sup>1</sup>-R<sup>4</sup> is, independently, H, substituted or unsubstituted C<sub>1-6</sub> alkyl, OH, C<sub>1-6</sub> alkoxy, N(R<sup>6</sup>)(R<sup>7</sup>), in which each of R<sup>6</sup> and R<sup>7</sup> is, independently, H or substituted or unsubstituted C<sub>1-6</sub> alkyl, NO<sub>2</sub>, CN or CO<sub>2</sub>R<sup>8</sup>, in which R<sup>8</sup> is H or C<sub>1-6</sub> alkyl; and

wherein R<sup>5</sup> is H, substituted or unsubstituted C<sub>1-6</sub> alkyl, substituted or unsubstituted C<sub>2-6</sub> alkenyl, substituted or unsubstituted C<sub>2-6</sub> alkynyl, unsubstituted C<sub>6-20</sub> aryl or C<sub>6-20</sub> aryl substituted with OH, C<sub>1-6</sub> alkoxy, N(R<sup>26</sup>)(R<sup>27</sup>), alkylaryl in which the aryl moiety is substituted with one or more C<sub>1-6</sub> alkyl groups further substituted with hydroxyl, protected hydroxyl, amino, protected amino, carboxy, protected carboxy, alkoxy, halo, CN or NO<sub>2</sub>, substituted or unsubstituted C<sub>4-20</sub> heteroaryl, C<sub>10-20</sub> diarylaminoaryl, or is absent, or B and D, together with R<sup>5</sup> and R<sup>11</sup>, are substituted or unsubstituted aryl; in which each of R<sup>26</sup> and R<sup>27</sup> is, independently, H, substituted

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or unsubstituted C<sub>1-6</sub> alkyl, substituted or unsubstituted aryl, substituted or unsubstituted alkylaryl, NO<sub>2</sub>, CN, or CO<sub>2</sub>R<sup>28</sup>, in which R<sup>28</sup> is H or C<sub>1-6</sub> alkyl;

wherein A is O, S, N(R<sup>9</sup>) in which R<sup>9</sup> is absent, H, substituted or unsubstituted alkyl, or substituted or unsubstituted aryl, N=N, or N=C(R<sup>10</sup>) in which the C is adjacent to B and in which R<sup>10</sup> is substituted or unsubstituted alkyl, or substituted or unsubstituted aryl;

wherein B is C or N;

wherein D is N, NH or C(R<sup>11</sup>) in which R<sup>11</sup> is substituted or unsubstituted alkyl, or substituted or unsubstituted aryl, or B and D, together with R<sup>5</sup> and R<sup>11</sup> are substituted or unsubstituted aryl;

and wherein E is C or Si;

provided that when A is O and D is N, then B is C and the floating double bond is between B and D;

further provided that when A is N(R<sup>9</sup>) and R<sup>9</sup> is absent, the B is N, R<sup>5</sup> is absent, D is NH, and the floating double bond is between A and B;

further provided that when A is N=N, then B is C, D is N, and the floating double bond is between B and D;

further provided that when A is N=C(R<sup>10</sup>), then B is N, R<sup>5</sup> is absent, D is C(R<sup>11</sup>), and the floating double bond is between B and D;

further provided that when A is N(R<sup>9</sup>) and R<sup>9</sup> is H, alkyl, or aryl, then B is C, D is C(R<sup>11</sup>), and the floating double bond is between B and D;

further provided that when A is O or S and D is C(R<sup>11</sup>), then B is C and the floating double bond is between B and D.

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***Response to Arguments***

8. Applicant's arguments with respect to claims 1-8, 11, 15-17 and 19 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
RENA DYE  
SUPERVISORY PATENT EXAMINER

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2/24/05